

WHAT IS CLAIMED IS:

1. A method of providing proportional currents in a
5 current mirror, the method comprising:

providing a current mirror having a reference current side
which provides a reference current, and a load current side which
provides a load current;

10 detecting an indication within the load current side of the
current mirror that the load current is decreasing; and

decreasing the reference current proportional to a decrease
in the load current.

2. A method as in claim 1 wherein detecting an indication
15 that the load current is decreasing includes detecting an
indicating voltage from the load currents side of the current
mirror.

3. A method as in claim 2 wherein decreasing the reference
20 current further includes using the indicating voltage to decrease
the reference current.

4. A method as in claim 2 wherein detecting an indicating
voltage further includes:

25 detecting at least one input voltage coupled into the load
current side of the current mirror;

and computing the indicating voltage based on the at least
one input voltage.

30 5. A method as in claim 2 wherein detecting an indicating
voltage further includes:

detecting at least one common mode voltage from the load
current side of the current mirror.

6. An apparatus for producing a load current proportional to a reference current, the apparatus comprising:

5 a reference current generator that produces a reference current;

a load current generator that produces a load current proportional to the reference current;

10 a sense circuit for sensing at least one parameter indicative of the load current and producing a control voltage from said at least one parameter; and

a circuit that decreases the reference current proportional to the control voltage.

15 7. An apparatus as in claim 6 wherein the parameter sensed is a voltage.

8. An apparatus as in claim 7 wherein the parameter sensed is a voltage proportional to at least one voltage input to a load 20 driven by the load current generator.

9. An apparatus as in claim 8 wherein the load driven is a differential input circuit and wherein the parameter sensed is a common mode voltage of the differential input circuit.

25 10. An apparatus as in claim 8 wherein the parameter sensed is a voltage at a junction of load current generator and the load driven by the load current generator.

30 11. An apparatus as in claim 6 wherein the circuit for decreasing the current in the reference circuit further includes a voltage source electrically in series with the reference generator.

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12. An apparatus as in claim 11 wherein the circuit that decreases the reference current decreases the reference current 5 in inverse proportion to the control voltage.

13. An apparatus as in claim 6 wherein the reference current generator includes an impedance substantially equivalent to the load impedance.

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14. An apparatus as in claim 13 wherein the reference current generator impedance includes a circuit which is a substantial duplicate of the load circuit.

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15. An apparatus as in claim 14 wherein the circuit which is a substantial duplicate of the load circuit accepts the same inputs as the load circuit.

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16. An apparatus as in claim 13 wherein the reference current generator impedance is an equivalent impedance.

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17. A circuit to improve tracking in a current mirror having a reference current side and a load current side, the reference current side having a reference current side impedance and the load current side having a load current side impedance, the circuit comprising:

a semiconductor device through which the load current passes;

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a semiconductor device through which the reference current passes; and

a circuit coupled to the output circuit which adjusts the voltage across the reference semiconductor device to match the voltage across the load semiconductor device.

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18. A circuit as in claim 17 wherein the reference current side impedance is adjusted to match the load current side
5 impedance .

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